

Serial No. 09/749,417
Amtdt Dated July 9, 2004
Reply to Office Action of February 13, 2004

Docket No. P-0173

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling a signal path in an optical transmission system ~~comprises~~ comprising:
~~the path provision step of providing a subscriber service path in the form of~~
first and second subscriber service signal paths;
~~the step of detecting a fail~~ failure by periodically checking the first and second service signal paths; and
~~the step of carrying out performing~~ a conventional auto path protection function if the first service signal path has a ~~fail~~ failure, or ~~carrying out performing~~ a new auto path protection function through a message communication channel included in [[the]] an overhead of a STM-n (Synchronous Transmission Multiplex signal level n) signal if the second service signal path has a ~~fail~~ failure,
wherein the second service signal path includes an add-drop & through path and supports a through path, an east-west add-drop & through path, and a west-east add-drop & through path when the system is operating in a ADM (Add-Drop Mode).

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2. (Original) The method according to claim 1, wherein the first service signal path is a path for providing voice and low-speed data services, and the second service signal path is a path for providing high-speed and very high-speed data services.

3. (Currently Amended) The method according to claim 1, wherein the first service signal path supports a through path and an add-drop path ~~in the system of the~~ when the system is operating in a terminal operation mode and the ADM operation mode, respectively, and further supports a through path and a ring add-drop path in ~~[[the]]~~ a ring operation mode.

4. (Canceled).

5. (Canceled).

6. (Currently Amended) The method according to claim ~~[[5]]~~ 1, wherein the east-west add-drop & through path drops a path signal received from the east to ~~[[the]]~~ a subscriber service processing unit, adds the path signal received from the subscriber service processing unit to the west, and passes the path signal received from the west through the east.

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7. (Currently Amended) The method according to claim [[5]] 1, wherein the west-east add-drop & through path drops a path signal received from the west to [[the]] a subscriber service processing unit, adds the path signal received from the subscriber service processing unit to the east, and passes the path signal received from the east through the west.

8. (Currently Amended) The method according to claim [[4]] 1, wherein the second service signal path supports a through path, ring add-drop path, east-west add-drop & through path, and west-east add-drop & through path ~~in the system of the~~ when the system is operating in a ring operation mode.

9. (Currently Amended) The method according to claim 1, wherein the message ~~transmission communication~~ channel uses K1 and K2 bytes of the overhead of [[a]] the STM-n signal.

10. (Original) The method according to claim 9, wherein the K1 byte comprises:
a protection request signal; and
an Id of a remote system for carrying out a protection request.

11. (Original) The method according to claim 10, wherein the protection request signal comprises:

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a no request signal representing that it is unnecessary to carry out protection;

a switch signal for switching only the direction of a signal path;

a round signal for assuring the continuity of a receiving signal;

a reverse request switch signal which is a response signal to the switch signal;

a reverse request round signal which is a response signal to the round signal;

and

a manual switch signal which is a manual path switch request.

12. (Original) The method according to claim 9, wherein the K2 byte comprises:

a system status signal for checking the status of a local system by a remote system; and

a local system Id.

13. (Currently Amended) The method according to claim 12, wherein the system status signal comprises:

an idle signal representing a normal state;

a rounded signal representing [[the]] a state in which a switch protection is carried out;

a manual switched signal representing [[the]] a state in which a manual path protection is carried out;

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a remote defect indication (RDI) signal notifying that a remote system signal has a defect;

a signal fail (SF) signal representing the direction in which a fail is detected and an auto protection message is forwarded; and

an initialization signal representing that a system is in ~~[[the]]~~ an initialization state.

14. (Currently Amended) The method according to claim 1, wherein ~~the step of~~ protecting the new path is carried out only ~~in the system of the~~ when the system is operating in a ring operation mode.

15. (Currently Amended) The method according to claim 1, wherein, ~~in the step of~~ for protecting the new path, a message for protection is transmitted in a signal direction, and ~~[[the]]~~ a system status is transmitted in both directions.

16. (Currently Amended) The method according to claim 15, wherein the system having received the protection ~~request signal~~ message delivers a response signal notifying ~~[[the]]~~ a system having transmitted the request signal that the protection request signal has been normally carried out.

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17. (Original) The method according to claim 16, wherein the system having received the response signal stops the delivering of the protection request signal.

18. (Currently Amended) The method according to claim 1, wherein, ~~in the step of~~ for protecting the new path, all ~~systems connected systems~~ before ~~detecting a fail~~ a failure is detected or ~~carrying out protection is carried out~~ are in ~~[[the]]~~ an idle state, and all systems in the idle state ~~delivers~~ deliver a no request signal (NRS).

19. (Currently Amended) The method according to claim 1, wherein, ~~in the step of~~ for protecting the new path, all ~~fails~~ failures that can be recognized by ~~[[a]]~~ the system are represented as a signal fail (SF), said SF including all ~~fails~~ failures that can affect path signal services.

20. (Currently Amended) The method according to claim 19, wherein the system having detected the SF delivers a status message of a remote detect indication (RDI) in the direction of detecting the SF, and delivers a SF signal in the opposite direction, thus making an adjacent system understand its status.

21. (Currently Amended) The method according to claim 19, wherein the system having detected the SF delivers a protection request signal for carrying out protection of a

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[[']]ring add-drop & through path[[']] in the opposite direction of the direction of detecting the SF.

22. (Currently Amended) The method according to claim 19, wherein the system having detected the SF carries out protection of a [[']]ring add-drop path[[']] in the opposite direction of the direction of detecting the SF, and changes the opposite direction of the direction of detecting the ~~fail~~ failure to a [[']]signal fail state (SF state)[[']], and changes the direction of detecting the ~~fail~~ failure to a [[']]remote defect indication state (RDI state).

23. (Original) The method according to claim 19, wherein the system having detected the SF does not deliver a protection request signal in the direction of detecting the SF.

24. (Previously Presented) The method according to claim 23, wherein the system having received the RDI signal carries out path protection in the opposite direction of the direction of receiving the RDI signal, and changes its status to the switched state.

25. (Currently Amended) The method according to claim 24, wherein the system that has already carried out the protection to be in the switched state carries out protection by checking its status upon receipt of a different path protection request signal.

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26. (Currently Amended) The method according to claim 20, wherein the system having received the RDI signal does not deliver any protection request signal to [[the]] a system disposed in the opposite direction of the direction of receiving the RDI signal.

27. (Currently Amended) The method according to claim 20, wherein the system having received the RDI signal does not deliver a protection request signal to [[the]] a next system.